

NON-PUBLIC?: N
ACCESSION #: 9501050269
LICENSEE EVENT REPORT (LER)

FACILITY NAME: River Bend Station PAGE: 1 OF 4

DOCKET NUMBER: 05000458

TITLE: REACTOR SCRAM RESULTING FROM INADVERTENT MSIV
ISOLATION
DUE TO FAILURE TO FOLLOW TEST PROCEDURE
EVENT DATE: 12/04/94 LER #: 94-030-00 REPORT DATE: 12/29/94

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
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COMPONENT FAILURE DESCRIPTION:
CAUS
: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On December 4, 1994 with the plant in Operational Condition 1 (Power Operation), a reactor scram occurred when isolation logic was satisfied for a Main Steam Isolation Valve (MSIV) isolation. This isolation signal was the direct result of surveillance activities that were being performed prior to the event.

The root cause of the event was that a procedural step requiring removal of a half MSIV isolation signal was not performed as required. This action resulted in the failure to remove a half MSIV isolation signal on one test channel prior to proceeding to the next test channel where another half MSIV isolation signal was generated. Corrective actions consisted of reinforcing management expectations regarding personal

accountability and procedure compliance. Also, the procedure revision process was modified to ensure that the appropriate verification requirements are considered during procedure revisions and reviews. The surveillance procedure was revised to incorporate the appropriate level of verification to ensure the MSIV isolation circuitry was restored before proceeding in the procedure. An evaluation determined that operator actions during the scram were appropriate and that safety systems functioned as designed.

END OF ABSTRACT

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REPORTED CONDITION

On December 4, 1994 with the plant in Operational Condition 1 (Power Operation), a reactor scram occurred when the isolation logic was satisfied for a Main Steam Isolation Valve (MSIV) (*ISV*) closure. The isolation signal was the direct result of surveillance activities that were being performed in accordance with STP-058-4501, "Containment and Drywell Manual Isolation Actuation Channel Functional Test." During the STP performance, a procedure step requiring the test technician to request the operator to reset the isolation signal for a test channel (*CH*) was not performed. This resulted in the failure to reset a half MSIV isolation signal on one test channel (Channel A) prior to proceeding to the next section of the procedure (Channel B) where a second half MSIV isolation signal was generated. Initiation of the second, half MSIV isolation satisfied the system logic requirements for MSIV closure resulting in a subsequent reactor scram due to MSIV position. This report is submitted pursuant to 10CFR50.73 (a)(2)(iv).

INVESTIGATION

Surveillance STP-058-4501 performs a functional test of the Containment and Drywell manual isolation pushbuttons. These switches control several different isolation functions including the four channels of MSIV isolation logic. The surveillance sequence performs the functional test on the first channel (Channel A) prior to proceeding to the next sequential channel (Channels B, C and D). Both the At-The-Controls (ATC) and Unit Operators perform the switch manipulations during the surveillance. The ATC operator was the primary interface with a Second Class I&C technician responsible for reading the procedure and operator interface. A Journeyman I&C technician was at the back panels and the Unit Operator was performing the manipulations which the ATC operator either could not perform (due to being outside the ATC area or were normally under the cognizance of the Unit Operator).

Upon completion of the pre-requisites required to perform the test, the Channel A portion of the test was initiated. These steps consisted of 1) requesting the operator to bypass the Channel A Balance of Plant (BOP) isolation function for a test relay, 2) requesting the operator to arm the isolation switch (*HS*) and verifying the resulting annunciator, 3) requesting the operator to depress and hold the pushbutton to generate the isolation signals and verifying the associated annunciator, 4) verifying the BOP isolation signals, 5) requesting the operator to release the pushbutton, 6) requesting the operator to restore the bypassed BOP isolation function, 7) requesting the operator to disarm the isolation pushbutton, 8) verifying the BOP signals had reset, 9) requesting the operator to reset the sealed-in half MSIV isolation signal, and 10) verifying all alarms cleared. The procedure then required an independent verification in accordance with Attachment 2 of the STP which verified the bypassed BOP isolation had been restored and the isolation switch had been disarmed.

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Because the annunciators had reset after de-actuating and disarming the isolation switch, the I&C Technician assumed that the half isolation signal had been reset by the operator and did not perform the step that requires him to request the operator to reset the signal. Following completion of Section 7.1 of the procedure, "Outboard Isolation Manual Initiation Channel A," the team proceeded to Section 7.2 of the procedure, "Inboard Isolation Manual Initiation Channel B". The scram occurred when the isolation signal was inserted in Channel B. Neither section 7.1 nor 7.2 of the procedure contained a step to verify that all isolation signals had been cleared or that no isolation signals were present before proceeding to the next channel. In addition, the attachment used for independent verification did not check the status of the MSIV isolation channel. No indication is available in the ATC area for the operators to use to determine the status of the isolation circuitry. The operator did not recognize that the procedure had been changed significantly from the last time it was performed and assumed the technician at the back panels would be checking the back panel indications for the MSIV status lights (*IL*) and ammeters (*II*) to ensure the isolation signals were reset. These checks were included only in the procedure's restoration section (Section 7.5) which would be performed after all channel functionals had been performed. The previous procedure revision included these steps after each section.

This procedure revision was performed as a result of the Technical Specification Surveillance Procedure review project. In the previous revision, the status lights and ammeters were verified in each section of

the procedure prior to proceeding to the next channel. These steps were marked to indicate they were required to satisfy Technical Specifications. The project determined that these steps (status lights and ammeters) were not required to be checked by Technical Specifications and were deleted. The procedure revision process failed to identify the verification function performed by these steps during the review and approval process.

In addition, neither the ATC operator who actually depressed the switch which inserted the isolation signal nor the Unit Operator who should have reset the isolation signal followed up and ensured that the signal was removed before proceeding into the next section of the procedure. Since the operators had performed this procedure before and were familiar with this STP, they each thought the isolation signal must have been reset since the technician had proceeded to Channel B. Consequently, when the isolation switch was actuated, the isolation logic for the full MSIV isolation was completed. The MSIVs closed and a reactor scram occurred due to MSIV position.

A review of recent River Bend Station Licensee Event Reports determined that no other similar events have occurred at RBS. However, there have been MSIV isolation events due to failed components and inadvertent grounding/shorting of test leads.

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ROOT CAUSE

The root cause of this event was that a procedural step requiring removal of a half MSIV isolation signal was not performed as required. A contributing cause was that steps to verify channel status had been removed during a previous revision.

CORRECTIVE ACTION

To address the associated human performance issues, individual counseling/discipline will be administered as determined necessary by department management. In addition, management expectations were reinforced to site personnel regarding personal accountability and procedure compliance through management meetings which discussed the specific issues and the overall philosophy of human performance improvement.

In addition, procedure STP-058-4501 was revised to include verification of circuit status lights (located in the back panel) and ammeters for each channel prior to proceeding to the next channel. A review of

similar multi-divisional "high-risk" surveillance test procedures will be performed to determine if verification barriers are in place when needed. These type procedures will also be revised to include notification of the Nuclear Control Operator, where appropriate, after work on each division is completed and prior to proceeding to the next step.

The procedure review and revision process will be enhanced by 1) revising the Technical Review checklist contained in RBNP-0001, "Control and Use of RBS Procedures, " to ensure that appropriate verifications are included as required by ADM-0076 "Verification Program" guidelines, 2) revision of the procedure writer's guide criteria to address human factors considerations and necessary barriers, and 3) provide additional training for departmental Technical Reviewers on human factors considerations for station procedures. In addition, status indication of the MSIV isolation circuits will be provided inside the ATC area to improve the human factors considerations associated with this issue.

SAFETY ASSESSMENT

An evaluation determined that operator actions during the scram were appropriate and that safety systems functioned as designed.

Note: Energy Industry Identification Codes are indicated in the text as (*XX*).

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JAMES J. FISICARO
Director
Nuclear Safety

December 29, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
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SUBJECT: River Bend Station - Unit 1
Docket No. 50-458

License No. NPF-47
Licensee Event Report 50-458/94-030
File Nos. G9.5, G9.25.1.3

RBG-41141
RBF1-94-0151

Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject report.

Sincerely,

JJF/RMM
Enclosure

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RBF1-94-0151
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cc: U.S. Nuclear Regulatory Commission
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*** END OF DOCUMENT ***
